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United States Government

Department of Energy

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memorandum

Carlsbad Field Office
Carlsbad, New Mexico 88221

DATE: JUL 14 2004

REPLY TO ATTN OF: CBFO:NTP:KWW:VW:04-1628:UFC:5822

SUBJECT: Expansion of Hanford Site TRU Waste Program to Include Shipment of Homogeneous Solids (S3000) – Audit A-04-06

TO: Keith Klein, Manager, DOE-RL

The Carlsbad Field Office (CBFO) conducted Audit A-04-06 in Carlsbad, New Mexico on November 4-5, 2003 as a follow-up activity to finalize the evaluation of the Hanford Site's transuranic (TRU) waste characterization and certification activities related to homogeneous solids. The technical and quality assurance (QA) activities related to homogeneous solids were found to be in compliance with the "Waste Analysis Plan" (WAP) of the WIPP *Hazardous Waste Facility Permit* (HWFP), the *Quality Assurance Program Document (QAPD)*, the *Contact-Handled Transuranic Waste Acceptance Criteria for the Waste Isolation Pilot Plant* (CH-WAC) and other CBFO requirements.

Based on the results of Audit A-04-06, the CBFO is expanding the Hanford characterization, certification, and transportation authority to include the following homogeneous solids activities:

- Solids sampling and analysis
- Project level data verification and validation
- Acceptable knowledge confirmation

Other activities relating to both debris and homogeneous solids wastes were evaluated during audit A-03-14 and approved on December 9, 2003 (memorandum CBFO:NTP:KWW:VW:03-3520:UFC:2300). Based on this approval, Hanford may now ship homogeneous solids (S3000) to the Waste Isolation Pilot Plant. See the attachments to this memorandum for a complete list of currently certified processes, equipment, and procedures at the Hanford Site.

TRU waste characterization, certification, or transportation using significantly revised or new processes, systems, or procedures must be evaluated by the CBFO prior to their implementation.

R. Paul Detwiler
Acting Manager

Attachments

040731

cc: w/attachments
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*ED denotes Electronic Distribution

HANFORD CERTIFICATION PROGRAM STATUS

The CBFO Office of the National TRU Program Manager and the Quality Assurance Manager have evaluated the documentation supporting the compliance of the Hanford Sites' TRU waste program for activities related to characterization and certification of homogeneous solids (S3000) waste. The recommendation to the CBFO Manager is that the Hanford authority be expanded to include the characterization, certification and shipment of homogeneous solids generated at the Plutonium Finishing Plant (PFP). Attachments 2 and 3 provide complete lists of all currently certified systems and procedures, including those evaluated during Audit A-04-06, that constitute the bounds of the Hanford authority.

The following processes are currently approved at the Hanford Site:

S5000 - Debris Waste	S3000 - Homogeneous Solids
➢ Acceptable knowledge ➢ Data verification and validation ➢ Headspace gas sampling and analysis (including hydrogen and methane) ➢ Radiography ➢ Visual examination ➢ Visual examination technique ➢ Non-destructive assay (IPAN, Calorimetry, SGSAS, GEA) ➢ Transportation ➢ WIPP Waste Information System interface	➢ Acceptable knowledge ➢ Data verification and validation ➢ Headspace gas sampling and analysis (including hydrogen and methane) ➢ Visual examination technique ➢ Non-destructive assay (Calorimetry & SGSAS) ➢ Transportation ➢ WIPP Waste Information System interface

PROGRAM STATUS

- All program elements remain complete
- The following required site documents have been revised, approved, and are in place identifying how the site complies with the CBFO upper-tier documents and other CBFO requirements:
  - QAPjP - *Hanford Site Transuranic Waste Characterization Quality Assurance Project Plan,* HNF-2599, Revision11 (approved by CBFO on April 29, 2004 - Memo CBFO:NTP:RMK:VW:04-1400:UFC:5822)
  - WCP - *Hanford Site Transuranic Waste Certification Plan,* HNF-2600, Revision 13 (approved by CBFO on April 30, 2004 - Memo CBFO:NTP:KWW:JGW:04-1415:UFC:5822)
  - QAP - Section 5.0 of WCP
  - TRAMPAC and QA Plan - Section 4.0 of WCP
  - Packaging QA Plan - Section 5.0 of WCP
  - Certified Systems - see attachment 2 for the complete list of certified systems

- Standard operating procedures - see attachment 3 for the complete procedure list

- Hanford Site participation in the following performance demonstration programs (PDPs):
  - **NDA**
    - NDA PDP participation was satisfactory in cycle 10A for the GEA-A (HA01/HAG1) and IPAN-A and B (HA03/HAN1 & HA04/HAN2) - memo CBFO:NTP:MRB:IW:03-3085:UFC:5822 dated September 16, 2003
    - NDA PDP participation was satisfactory in cycle 10A for the GEA-B (HA02/HA-G2) – memo CBFO:NTP:MRB:VW:03-3529:UFC:5822 dated December 11, 2003
  - **HSG**
    - HSG PDP participation was satisfactory in cycle 17A for the GC/MS (VAP#7 & VAP#8) - memo CBFO:NTP:MRB:VW:03-1713:UFC:5822 dated April 22, 2003 and a second identical system (VAP#6) was approved for use on October 23, 2003 - memo CBFO:NTP:MRB:VW:03-3327:UFC:5822. CBFO issued approval of VAP#6, VAP#7 & VAP#8 upon satisfactory participation of VAP#6 – memo CBFO:NTP:MRB:JGW:04-1163:UFC:5822 dated April 12, 2004.
    - HSG PDP participation was satisfactory in cycle 17A for the Idaho National Engineering and Environmental Laboratory TRU Waste Characterization Program (INEEL TWCP) Environmental Chemistry Laboratory (ECL) – memo CBFO:NTP:MRB:VW:03-1657:UFC:5822 dated April 8, 2003 and cycle 18A CBFO:NTP:MRB:VW:04-1119:UFC:5822 dated March 29, 2004
  - **RCRA**
    - Participation was satisfactory for the INEELTWCP Analytical Laboratories Department (ALD) in Cycle 10A for metals, aqueous extractable VOCs, purgeable VOCs, SVOCs, and PCBs - memo CBFO:NTP:MRB:IW:03-2153:UFC:5822, dated May 20, 2003. INEEL TWCP participation was also satisfactory for metals, aqueous extractable VOCs, purgeable VOCs and SVOCs in RCRA PDP Cycle 11A - memo CBFO:NTP:JGW:04-1426:UFC:5822, dated May 13, 2004.
- No CARs were issued during Audit A-04-06.
- The CBFO completed Audit A-04-06 and issued the interim audit report to Hanford on December 1, 2003. The Final Audit Report was issued to NMED on January 8, 2003 and resubmitted on June 18, 2004 to address NMED comments received on June 9, 2004. Final Audit Report A-04-06 was approved by NMED on July 2, 2004.
- EPA issued QA reports dated June 24, 2003, July 21, 2003 & closeout for QA concerns on March 9, 2004. EPA issued a technical inspection report (EPA-Hanford-06.03-8 and 24) on August 7, 2003 and approved six additional calorimeters for limited methods on October 23, 2003 and approved additional calorimeter methods on March 26, 2004.

RECOMMENDATION

The recommendation to the CBFO Manager is to expand Hanford Site's characterization, certification, and transportation authority to include those activities audited during A-04-06 for homogenous solids (S3000).

CONCURRENCE

D. J. Mikl FOR — 7-9-04

Ms. Ava L. Holland
Quality Assurance Manager
Date

Kerry W. Watson — 7/13/04

Mr. Kerry W. Watson
CBFO Assistant Manager
National TRU Program
Date

Hanford Certified Equipment List

WIPP #	Site Equipment Number	Title	Description	Components	Software
Headspace Gas					
2HG1	HSG US00033159	Hewlett Packard GC/MS (7) (PDP ID – VAP#7, WC68672) (Identical System – 18A 4/12/04)	Gas Chromatograph/Mass Spectrometer – VOCs analysis	❑ GC/MS (method described in procedure LA-523-410)	❑ EnvironQuant ChemStation G1701BA
2HG2	HSG US00032565	Hewlett Packard GC/MS (8) (PDP ID – VAP#8, WC68671) (Identical System – 18A 4/12/04)	Gas Chromatograph/Mass Spectrometer – VOCs analysis	❑ GC/MS (method described in procedure LA-523-410)	❑ EnvironQuant ChemStation G1701BA
2HG3	HSG S336A58373	Agilent GC/MS (6) (PDP ID – VAP#6, WC80557) (PDP 18A approved 4/12/04)	Gas Chromatograph/Mass Spectrometer – VOCs analysis	❑ GC/MS (method described in procedure LA-523-410)	❑ EnvironQuant ChemStation G1701DA
Non-destructive Assay					
2SG1	PFP Room 170 SGSAS	PFP Room 170 SGSAS	PFP Room 170 Segmented Gamma Scan Assay System	❑ 2 HPGe detectors associated vertical drive and turntable ❑ 1 30% relative SEGe and BEGe detector	❑ Genie PC Software Suite, version 2.2 including Gamma Waste Assay Software (GWAS), v.2.3.a ❑ Multiple Group Analysis (MGA) v.9.5 CI ❑ PFPTMU ❑ Automated Independent Technical Review (AITR)
2SG2	PFP Room 172 SGSAS	PFP Room 172 Segmented Gamma Scan Assay System	PFP Room 172 Segmented Gamma Scan Assay System	❑ 1 coaxial detector ❑ 1 LEGe detector	❑ NDA-2000 Software, Version 3.1 ❑ MGA v. 9.63B
2GE1	Canberra 104-ND-06-102A	GEA-A (PDP ID – HA01/HAG1) (PDP 10A approval 9/16/03)	Gamma Energy Assay System Unit A Methods: WRP1-OP-0905, WRP1-OP-0906, WMP-350 Section 2.2	❑ GEA system consisting of: o 4 high resolution coaxial germanium detectors to detect the main spectrum of gamma radiation o 2 high resolution planar germanium detectors to detect the low energy gamma spectra	❑ Genie PC Spectroscopy System Software, version 2.2 ❑ Gamma Waste Assay Software (GWAS), v.2.3.a ❑ Multigroup Analysis Software (MGA) v.9.5
2GE2	Canberra 104-ND-06-102B	GEA-B (PDP ID – HA02/HA-G2) (PDP 10A	Gamma Energy Assay System Unit B Methods: WRP1-OP-0905,	❑ GEA system consisting of: o array of 4 high resolution coaxial germanium detectors to detect the	❑ Genie PC Spectroscopy System Software, version 2.2 ❑ Gamma Waste Assay

WIPP #	Site Equipment Number	Title	Description	Components	Software
		Approval 12/11/03)	WRP1-OP-0906, WMP-350 Section 2.2	main spectrum of gamma radiation o 2 high resolution planar germanium detectors to detect the low energy gamma spectra	Software (GWAS), v.2.3.a ❑ Multigroup Analysis Software (MGA) v.9.5
2CA1	ANTECH AR-1	AR-1	R-Series Calorimeter (Endpoint & Prediction Methods)	❑ Air-bath calorimeter	MasterCAL Software, Version 9.1.3
2CA2	ANTECH AR-5	AR-5	R-Series Calorimeter (Endpoint, Prediction, & Equilibrium Methods)	❑ Air-bath calorimeter	MasterCAL Software, Version 9.1.3
2CA3	ANTECH AR-8	AR-8	R-Series Calorimeter (Prediction & Equilibrium Methods)	❑ Air-bath calorimeter	MasterCAL Software, Version 9.1.3
2CA4	ANTECH P-13	P-13	P-Series Calorimeter (Endpoint, Prediction, & Equilibrium Methods)	❑ Air-bath calorimeter	MasterCAL Software, Version 9.1.3
2CA5	ANTECH P-14	P-14	P-Series Calorimeter (Endpoint & Equilibrium Methods)	❑ Air-bath calorimeter	MasterCAL Software, Version 9.1.3
2CA6	ANTECH P-15	P-15	P-Series Calorimeter (Endpoint, Prediction, & Equilibrium Methods)	❑ Air-bath calorimeter	MasterCAL Software, Version 9.1.3
2CA7	ANTECH Q-1	Q-1	Q-Series Calorimeter (Endpoint, Prediction, & Equilibrium Methods)	❑ Air-bath calorimeter	MasterCAL Software, Version 9.1.3
2IP1	Pajarito 104-ND-06-101A	IPAN-A (PDP ID – HA03/HAN1) (PDP Approval 10A 9/16/03)	Imaging Passive-Active Neutron System A Methods: WRP1-OP-0905, WRP1-OP-0906, WMP-350 Section 2.2	Pajarito Scientific Corp. (now owned by BNFL) IPAN unit consisting of: ❑ Shielded vault ❑ Zetatron Neutron Generator ❑ Multiple He^3 detector banks with Pulse Forming Networks	KEH.exe Version 3.28 KEH.xls Version 1.1 KEH_A_AMX.xls v 4.0A KEH_A_PMX.xls v 4.1A KEH_A_TMU.xls v 1.0A
2IP2	Pajarito 104-ND-06-101B	IPAN-B (PDP ID – HA04/HAN2) (PDP 10A Approval 9/16/03)	Imaging Passive-Active Neutron System B Methods: WRP1-OP-0905, WRP1-OP-0906, WMP-350 Section 2.2	Pajarito Scientific Corp. (now owned by BNFL) IPAN unit consisting of: ❑ Shielded vault ❑ Zetatron Neutron Generator ❑ Multiple He^3 detector banks with Pulse Forming Networks	KEH.exe version 3.28 KEH.xls version 1.1 KEH_B_AMX.xls v 4.0B KEH_B_PMX.xls v 4.1B KEH_B_TMU.xls v 1.0B
Non-destructive Examination					
2RR1	104-ND-06-104A NDE-A	NDE-A	VJ Technology real-time radiography unit	VJ Technology RTR unit consisting of: ❑ shielded vault ❑ drum manipulator ❑ 1 x-ray tube with diaphragm shutters ❑ image intensifier ❑ video camera and shutters	None

WIPP #	Site Equipment Number	Title	Description	Components	Software
				❑ Linear Diode Array detector	
2RR2	104-ND-06-104B NDE-B	NDE-B	VJ Technology real-time radiography unit	VJ Technology RTR unit consisting of: ❑ shielded vault ❑ drum manipulator ❑ 1 x-ray tube with diaphragm shutters ❑ image intensifier ❑ video camera and shutters ❑ Linear Diode Array detector	None

HANFORD LIST OF CERTIFIED PROCEDURES/DOCUMENTS

#	PROCEDURE NUMBER	TITLE
1.	DO-080-009 Superceded by TRU-OP-001 on May 3, 2004.	Obtain Headspace Gas Samples of TRU Waste Containers
2.	FSP-PFP-5-8, section 16.2	Data Management
3.	FSP-PFP-5-8, section 16.3	Establishing QC Criteria for the SGSAS
4.	FSP-PDP-5-8, section 16.4	Calibration Confirmation for the SGSAS at PFP
5.	HNF-2599	Hanford Site Transuranic Waste Characterization Quality Assurance Project Plan
6.	HNF-2600	Hanford Site Transuranic Waste Certification Plan
7.	HNF-4050	Total Measurement Uncertainty for Nondestructive Assay of Transuranic Waste at the Receiving and Processing Facility
8.	HNF-4051	Quality Assurance Objectives for Nondestructive Assay of Transuranic Waste at the Receiving and Processing Facility
9.	HNF-5148	Calibration Report for the WRAP Gamma Energy Assay System
10.	HNF-17808	HNF/INEEL Interface Document
11.	LA-523-410	Determination of VOCs in TRU/Mixed Waste Container Headspace
12.	LA-523-426 Reactivated September 10, 2003	Determination of Permanent Gases in Waste Container Headspace –
13.	LO-080-407	Cleaning SUMMA Canisters for TRU Headspace Gas Sampling
14.	LO-090-450	TRU Project Sample Storage, COC, Acceptance, and Disposal
15.	TRU-OP-001 Replaced DO-080-009 on May 3, 2004.	Headspace Gas Samples of TRU Waste Containers
16.	WMP-350, section 2.2	Calculation of Assay Results
17.	WMP-350, section 2.3	Data Management
18.	WMP-350, section 2.5	GEA Energy and Efficiency Setup and Baseline Establishment
19.	WMP-350, section 2.8	WRAP NDA Measurement Control Program
20.	WMP-350, section 2.9	Performing Calibration Verifications and Confirmation for Nondestructive Assay at WRAP
21.	WMP-400, section 1.1.2	TRU Graded Approach
22.	WMP-400, section 1.2.1	TRU Training and Qualification Plan
23.	WMP-400, section 1.2.2	Qualification and Certification of Inspection and Test Personnel
24.	WMP-400, section 1.2.3	Qualification and Certification of Audit Personnel
25.	WMP-400, section 1.3.1	TRU Corrective Action Management
26.	WMP-400, section 1.3.2	TRU Nonconforming Item Reporting and Control System
27.	WMP-400, section 1.3.3	TRU Corrective Action Reporting and Control
28.	WMP-400, section 1.4.1	TRU Document Control
29.	WMP-400, section 1.5.1	TRU Records Management
30.	WMP-400, section 2.1.1	TRU Process Control
31.	WMP-400, section 2.1.2	TRU Operating Procedure Preparation and Approval
32.	WMP-400, section 2.1.3	TRU Administrative Procedure Preparation and Approval
33.	WMP-400, section 2.1.4	TRU Handling and Storage
34.	WMP-400, section 2.1.5	TRU Transportation Logistics
35.	WMP-400, section 2.1.6	TRU Analytical Procedure Process
36.	WMP-400, section 2.3.1	TRU Procurement Planning
37.	WMP-400, section 2.3.2	TRU Procurement Document Control
38.	WMP-400, section 2.3.3	TRU Control of Purchased Items and Services
39.	WMP-400, section 2.4.1	TRU Inspection Control

40.	WMP-400, section 2.4.2	TRU Test Control
41.	WMP-400, section 2.4.4	TRU Control of Measuring, Test, and Data Collecting Equipment
42.	WMP-400, section 2.4.5	TRU Identification and Control of Items
43.	WMP-400, section 3.1.1	TRU Management Assessment
44.	WMP-400, section 3.1.2	Quality Assurance Reports to Management
45.	WMP-400, section 3.2.1	TRU Independent Assessments
46.	WMP-400, section 3.2.2	TRU Surveillance Program
47.	WMP-400, section 6.1.1	TRU Software Quality Assurance
48.	WMP-400, section 7.1.1	TRU Waste Data Quality Objectives Reconciliation and Reporting
49.	WMP-400, section 7.1.10	TRU Waste Visual Examination Technique
50.	WMP-400, section 7.1.3	Transuranic Waste Repackaging, Visual Examination, and Sampling
51.	WMP-400, section 7.1.4	Sampling Design and Data Analysis for RCRA Characterization and Visual Examination of Retrievably Stored Transuranic Waste
52.	WMP-400, section 7.1.5	WIPP Waste Information System Data Entry and Reporting
53.	WMP-400, section 7.1.6	TRU Waste Project Level Data Validation and Verification
54.	WMP-400, section 7.1.7	TRU Waste Container Management Activities
55.	WMP-400, section 7.1.8	Transuranic Waste Transportation and Disposal Certification
56.	WMP-400, section 7.1.9	Acceptable Knowledge Documentation Management
57.	WMP-400, section 8.1.1	Logkeeping Practices for WIPP Activities for Headspace Gas Sampling and Analysis
58.	WMP-400, section 8.1.8	Headspace Gas Sampling and Analytical Results
59.	WRP1-OP-0503	Move Drums Throughout WRAP
60.	WRP1-OP-0521	Receive and Load TRUPACT-II Containers
61.	WRP1-OP-0522	Assemble and Stretch Wrap TRUPACT-II Payload
62.	WRP1-OP-0524	Helium Leak Test of the TRUPACT-II Shipping Container
63.	WRP1-OP-0722	TRU RWM Glovebox Automatic Mode Operation
64.	WRP1-OP-0725	TRU Sorting Glovebox Operation
65.	WRP1-OP-0726	TRU Loadout Glovebox Operations
66.	WRP1-OP-0729	Visual Examination
67.	WRP1-OP-0905	Imaging Passive/Active Neutron Assay Operation
68.	WRP1-OP-0906	Gamma Energy Assay Operations
69.	WRP1-OP-0908	Operation of Drum Nondestructive Examination System
70.	WRP1-OP-0911	Storage and Use of Special Nuclear Material (for PDP work only)
71.	WRP1-OP-1225	Radiological Support of TRUPACT-II Shipping and Receiving
72.	ZA-400-301	SGSAS Energy and Efficiency Setup and Baseline Determination
73.	ZA-400-302	Calculation of Assay Results
74.	ZA-400-303	Energy and Efficiency Setup and Baseline Determination Using NDA 2000
75.	ZA-400-304	ANTECH Calorimeter Calibration
76.	ZA-948-385	Nondestructive Assay Using the Segmented Gamma Assay System (SGSAS)
77.	ZA-948-392	NDA Using the NDA 2000 (Room 172 SGSAS) 2nd SGSAS
78.	ZA-948-393	NDA Using Room 172 ANTECH Calorimeters
79.	ZO-160-080	Pipe-N-Go Operations
80.	ZO-160-081	Pu/Al Alloys Operation
81.	ZO-160-082	Residue Solid Sampling

Hanford Inactive or Cancelled Procedures

#	Procedure Number	Procedure Title	Date
1.	WMP-350, section 2.4	Quality Assurance Objectives for NDA at WRAP Cancelled - Replaced by WMP-350, sections 2.8 and 2.9	5/17/02
2.	FSP-PFP-5.8, 16.1	Quality Assurance Objectives for NDA at PFP Cancelled - Replaced by FSP-PFP-5-8, sections 16.3 and 16.4	5/17/02